REMARKS

The application has been reviewed in light of the Office Action dated July 12, 2005. Claims 1-54 are pending, with claims 1, 11, 21, 31, 35, 39, 43, 47 and 51 being in independent form. Claims 11-30, 35-42 and 47-54 were withdrawn by the Patent Office from consideration. Accordingly, claims 1-10, 31-34 and 43-46 are presented for reconsideration.

Claims 1-10, 31-34 and 43-46 were rejected under 35 U.S.C. § 102(b) as purportedly anticipated by Japanese Patent Application Publication No. 2000-211124 (Sekiya '124).

Applicant has carefully considered the Examiner's comments and the cited art, and respectfully submits that independent claims 1, 31 and 43 are patentable over the cited art, for at least the following reasons.

This application relates to liquid jet recording (for example, ink jet recording) wherein the recording liquid contains fine particles of a pigment. Conventional techniques for such liquid jet recording are not optimized for high-quality image formation which motivates the use of smaller discharge ports. Conventional liquid jet recording equipment for pigment-based recording liquid often experiences clogging problems.

Applicant devised liquid jet recording apparatus including a liquid jet head having nozzles from which a pigment-based recording liquid is ejected to a recording medium, wherein the fine particles of the pigment contained in the recording liquid are no less than 1% by weight, wherein each of the nozzles has an area that is less than $500\mu m^2$, and each of the fine particles of the pigment has a diameter satisfying a relation of $0.0005 \leq Dp/Do \leq 0.02$ (Dp represents the diameter of each of the fine particles of the pigment and Do represents a size of each of the nozzles). In addition, the fine particles are smaller than fibers of the recording medium, and are smaller than spaces between the fibers of the recording medium which allow

the pigment particles to suitably adhere to the recording medium. When the nozzle element ejects the recording liquid onto the recording medium, a contact angle of the recording liquid stops changing when 100 ms or less elapses after the recording liquid contacts the recording medium. As evident from Fig. 7 of this application and the corresponding discussion in the specification (for example, at page 70, line 14 through page 74, line 18), such a feature allows dot patterns to be formed with satisfactory shape. These features are included in each of independent claims 1, 31 and 43.

Sekiya '124 is directed to liquid jet recording using a recording liquid having fine particles dispersed therein.

Paragraph [0065] of Sekiya '124 discloses that (i) it is preferable to increase the interfacial tension with respect to paper in a case where black ink is used, and lower the interfacial tension with respect to paper in a case where color ink is used, and (ii) the interfacial tension between ink and paper is measured by using a dynamic wettability testing machine, in which a contact angle that is no less than 90 degrees or more means that interfacial tension is high, and a contact angle that is no more than 90 degrees means that interfacial tension is low.

However, Sekiya '124 does not disclose or suggest the feature that when the nozzle element ejects the recording liquid onto the recording medium, a contact angle of the recording liquid stops changing when 100 ms or less elapses after the recording liquid contacts the recording medium, as provided by the claimed invention of independent claims 1, 31 and 43.

Paragraph [0064] of Sekiya '124 discloses that the average diameter of the pigment particles in the recording liquid should preferably range from 0.02 to 1 μm and more preferably from 0.03 to 0.4 μm, for attaining dispersion stability.

However, there is no teaching or suggestion in Sekiya '124 that the diameter of the

particles should have a certain relation with the property of the recording medium, and more specifically that the fine particles are smaller than fibers of the recording medium, and are smaller than spaces between the fibers of the recording medium, as provided by the claimed invention of independent claims 1, 31 and 43.

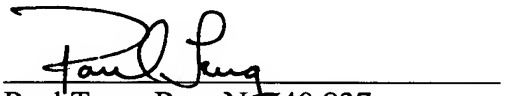
Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 1, 31 and 43, and the claims depending therefrom, are patentable over the cited art.

In view of the remarks hereinabove, Applicant submits that the application is now in condition for allowance. Accordingly, Applicant earnestly solicits the allowance of the application.

If a petition for an extension of time is required to make this response timely, this paper should be considered to be such a petition. The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,



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